



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,271	12/14/2001	Naiyong Jing	57334US002	3878
32692	7590	10/14/2003	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			BISSETT, MELANIE D	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 10/14/2003

Step S

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/023,271	JING ET AL.	
	Examiner Melanie D. Bissett	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-52 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1,2,4-6,8-11,13-17,19-26,28-41 and 48-52 is/are rejected.
 7) Claim(s) 3,7,12,18,27 and 44-47 is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2-4</u> . | 6) <input type="checkbox"/> Other: _____ |

Information Disclosure Statement

1. The US applications listed on the PTO-1449 have been considered but stricken from the form, since only published documents should be documented. The examiner has listed the corresponding published applications on the Form PTO-892. Since it is believed that the applicant possesses these references, they will not be provided with the present Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 49-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 49 recites the limitation "the polymer film" in part d). There is insufficient antecedent basis for this limitation in the claim. Also, the process is unclear. It is unclear how the second substrate works with the process or what is being contacted with the coated solution.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1711

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 5, 13-15, 20-22, 25, 31-33, and 51 are rejected under 35

U.S.C. 102(b) as being anticipated by Hallman et al.

7. Hallman discloses a substrate provided with a coating that is subjected to electromagnetic actinic radiation (abstract). The reference indicates plastic substrates coated with inorganic compounds, including metal sulfides, metal halides, and metal selenides (col. 2 lines 30-61). Coating materials are applied by painting or spraying a solution on a surface of the substrate (col. 3 lines 12-37). Solvents include aqueous solutions of organic solvents (glycerin) or water alone. Because water is a nucleophile, an aqueous solution also meets the limitations of claim 20. The coating is then subjected to actinic radiation in an image-wise manner to render the exposed areas adhesive to ink (col. 5 lines 1-26). Thus, the radiated coating modifies the substrate.

8. Claims 1-2, 5-6, 13-16, 20-22, 25-26, 31-34, and 51 are rejected under 35

U.S.C. 102(b) as being anticipated by Madsen.

9. Madsen discloses a method of treating a surface in an image-wise manner with a sensitizing solution comprising a reducible metal salt and a radiation-sensitive reducing agent (abstract). Sensitized substrates are subjected to light radiation to modify the surface (abstract). Suitable substrates include thermoplastic resins and polyester fibers materials (col. 2 line 58-col. 3 line 3). Solvents for the sensitizing solution include water and mixtures of water and alcohol (col. 4 lines 1-14), and reducing agents include disulfonic acid salts (col. 4 lines 15-27). Coating methods include curtain coating, roller

Art Unit: 1711

coating, and spraying, which suggest that only one side is coated with the sensitizer solution (col. 5 lines 34-54). The sensitizer solution comprising a reducing agent, a complexing agent, a metal accelerator, and a basic compound encompass "at least one sensitizer". Because water is a nucleophile, an aqueous solution also meets the limitations of claim 20.

10. Claims 1-2, 5, 8-9, 11-12, 13-14, 17, 19-23, 25, 28-29, 31-32, 35-38, 40-43, 48-49 and 51-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Murahara et al. Murahara et al. (US 6,117,497 A) can be found on the applicant's Form PTO-1449.

11. Murahara discloses a liquid compound, which is applied to a surface and radiated with UV, visible, or infrared radiation (abstract). The coating imparts hydrophilicity onto the substrate. Murahara also teaches bonding a substrate, including fluoroplastics, to another material, including the same material, via the liquid compound (col. 4 lines 27-43). Liquid compounds for modifying fluoroplastics materials comprise metal salts (col. 5 lines 3-20) and a solvent, including water and organic liquids (col. 5 lines 32-42). The solution may be coated onto the surface of the substrate (col. 5 lines 55-66). Figure 1 demonstrates a substrate coated with a solution to form a film, where a glass material is placed in contact with the coating. The article is irradiated through the glass in an image-wise manner. Since the materials are pressed together and irradiated, it is the examiner's position that the reference suggests the bonding of the materials. See also example 1. Note that the reference teaches a wavelength of 300

nm for applying radiation to the inventive articles. Because water is a nucleophile, an aqueous solution also meets the limitations of claim 20.

12. Regarding claims 49 and 52, the reference indicates that reaction takes place at the fluoropolymer/coating interface due to radiation (col. 4 lines 44-50; col. 13 lines 4-20). Therefore, by passing through the glass/coating interface to the fluoropolymer material, the radiation is exposed to both interfaces simultaneously. Also, it is the examiner's position that an article of Murahara's invention would be indistinguishable from that of claim 49, since the thin film is fully exposed to the radiation.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 4, 24, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murahara et al.

15. Murahara applies as above, noting the use of metal salts but failing to exemplify those of the applicant's claims 4, 24, and 39. Murahara lists metal triiodide salts and alkali metal iodide salt (col. 5 lines 3-20) for use in the invention. The metal salts serve to bond with fluorine atoms and improve adhesion (col. 4 lines 50-59). Therefore, it is the examiner's position that it would have been *prima facie* obvious to choose an alkali

metal salt like LiI for use in the invention with the expectancy of equally improving adhesion to fluoropolymer materials.

16. Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murahara et al. as evidenced by Daikin Industries. Daikin Industries (EP 0769,517 A1) can be found on the applicant's PTO-1449.

17. Murahara indicates the use of different radiation sources but does not exemplify the use of a radiation source having a wavelength of about 250-about 260 nm. Murahara notes the use of KrF lasers for applying ultraviolet radiation to thermoplastic materials to liberate hydrogens from the substrate material (col. 7 lines 23-50). Daikin Industries notes the common wavelengths for conventional lasers mentioned in Murahara, where KrF lasers are known to operate at 249 nm (p. 3 lines 34-42). It is the examiner's position that this wavelength fits the applicant's "about 250 nm". Because Murahara indicates the use of KrF for applying radiation to thermoplastic substrates, it is the examiner's position that it would have been *prima facie* obvious to choose KrF lasers in the expectancy of equally liberating hydrogens from thermoplastic substrate materials.

Allowable Subject Matter

18. Claims 3, 7, 12, 18, 27, and 44-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The closest prior art, Murahara et al., discloses a liquid compound, which is applied to a surface and radiated with UV, visible, or infrared radiation. The reference does not note the use of a guanidinium salt, a polyimide substrate, the applicant's claimed second film substrate of claim 18, an aqueous organic solvent, a sensitizer, or a step of heating the materials for bonding purposes. For these reasons, it is the examiner's position that the claims cited above provide a novel and unobvious step over the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700

mdb